

FEASIBILITY STUDY

Sylva-Dillsboro Southern Loop
From US 23-441 South of Dillsboro to US 23-74 East of Sylva

Jackson County

Division 14

FS-0114C

R-4745



Prepared by
Kimley-Horn and Associates, Inc.
for the
Program Development Branch
Division of Highways
N. C. Department of Transportation

A handwritten signature in black ink, appearing to read "Ron Hairr".

Ron Hairr
Project Manager
Kimley-Horn and Associates, Inc.

A handwritten signature in black ink, appearing to read "Derrick W. Lewis".

Derrick W. Lewis, P.E.
Feasibility Studies Unit Head

5/19/03

Date

Jackson County

Sylva-Dillsboro Southern Loop From US 23-441 South of Dillsboro to US 23-74 East of Sylva

FS-0114C

I. General Description

This feasibility study describes the proposed Sylva-Dillsboro Southern Loop in Jackson County. The project study limits (see Figure 1) are from US 23-441 south of Dillsboro to US 23-74 east of Sylva.

Two alternate corridors were investigated. The first corridor, identified as the Northern Alternate (see Figure 1) is in general conformity with the Sylva-Dillsboro Southern Loop as described in the approved thoroughfare plan for Sylva and Dillsboro. The second corridor, the Southern Alternate, was developed in response to requests from local officials to provide better access to southern Jackson County from US 23-441 and US 23-74 and to better address traffic issues along sections of NC 107 near Sylva and Webster.

The proposed cross-section for each alternate was determined based on 2025 traffic projections. The cross-section for either alternate consists of a four-lane divided facility with a 22-foot median utilizing a concrete median barrier. The "basic" right-of-way would be 300 feet with extensive permanent easements due to the mountainous terrain. Therefore, the right-of-way could range from 300 feet to 1,400 feet depending on alternate and location. Because this study is for a roadway on new location, a 1,200-foot corridor was utilized for the environmental screening process. Each alternate is divided into two segments. The west segment runs from US 23-441 to NC 107, and the east segment runs from NC 107 to US 23-74.

The Southern Alternate is favored by local officials for its better access to the southern portion of Jackson County and the traffic relief along NC 107. However, before the Southern Alternate can be utilized for the construction of the Sylva-Dillsboro Southern Loop the thoroughfare plan for Sylva and Dillsboro must be modified to reflect this alignment.

Design investigations into each alternate revealed the following potential relocation impacts and cost estimate information:

Northern Alternate

The Northern Alternate has a total length of 6.3 miles. It is anticipated that there will be approximately 124 residential and 17 business relocations due to this alternate. A preliminary estimate of cost was prepared by NCDOT. This

estimate includes approximately \$168,800,000 for construction and \$25,000,000 for ROW for a total cost of \$193,800,000.

Southern Alternate

The Southern Alternate has a total length of 8.7 miles. It is anticipated that there will be approximately 94 residential and 5 business relocations due to this alternate. A preliminary estimate of cost was prepared by NCDOT. This estimate includes approximately \$208,900,000 for construction and \$18,500,000 for ROW for a total cost of \$227,400,000.

II. Need for the Project

The purpose of this project is to relieve traffic congestion on NC 107 and US 23 Business in Sylva and Dillsboro. Due to the physical constraints of mountainous terrain in this area, US 23 Business and NC 107 serve as the principal major thoroughfares for the central business districts of both towns. The Sylva-Dillsboro Southern Loop (hereafter known as the Southern Loop) would relieve traffic through the downtown of both Sylva and Dillsboro. Also, the Jackson County Board of Commissioners passed a resolution dated September 7, 2000 requesting an investigation of options to relieve traffic congestion on NC 107. This congestion has resulted from increased population as well as continuing and projected growth of Southwestern Community College and Western Carolina University.

The thoroughfare plan for Sylva and Dillsboro was adopted by The Town of Dillsboro in 1993, the Town of Sylva in 1994, and the NCDOT in 1994. It shows the Southern Loop to be a major thoroughfare on new location with interchanges located at US 23-441, NC 107, and US 23-74. The Northern Alternate described in this feasibility study generally conforms to the corridor described in the thoroughfare plan. Requests from the Jackson County Board of Commissioners and former Board of Transportation member Mr. Ron Leatherwood were made for the study of a corridor south of the corridor presented in the thoroughfare plan. This corridor would address traffic issues along NC 107 and provide better access to the southern part of the county. The Southern Alternate investigated in this feasibility study would fulfill the needs described above. The selection of the Southern Alternate alignment for the Southern Loop will require amending the current thoroughfare plan to insure compliance with the transportation planning process.

The roadway network in the study area consists of the highway system shown in Figure 2. The current year and 2025 design year traffic volumes for the "No Build" scenario are shown in Figures 3a and 3b respectfully. The 2025

“Build” scenario for the Northern Alternate is shown in Figures 3c and 3d. The 2025 “Build” scenario for the Southern Alternate is shown in Figures 3e and 3f.

The current 2004-2010 draft Transportation Improvement Program lists several bridge replacement or rehabilitation projects within the vicinity of the proposed Sylva-Dillsboro Southern Loop. These projects are as follows: (1) TIP No. B-3351 is a replacement of Bridge #146 on SR 1370 over Greens Creek; (2) TIP No. B-3860 is a replacement of Bridge #33 on SR 1457 over Buff Creek; (3) TIP No. B-4162 is a replacement of Bridge #320 on SR 1432 over Southern Railway; (4) TIP No. B-4163 is a replacement of Bridge #123 on SR 1437 over Scotts Creek; and (5) TIP No. B-4554 is a rehabilitation of Bridge #145 over SR 1705, Scotts Creek, and Southern Railway.

Traffic Analysis

Capacity analyses were performed for the 2001 existing and 2025 projected traffic volumes for the existing traffic network in the Sylva-Dillsboro study area. To determine the capacity of roadway segments for both existing roadways and the Northern and Southern Alternates, *HCM 2000* was utilized. To analyze the capacity of the existing signalized intersections as well as the intersections at the Southern Loop interchange with NC 107, *Synchro version 5.0* was used.

Traffic volumes for existing conditions (2001) as well as projected volumes for the “Build” and “No-Build” scenarios were analyzed and are discussed below.

Existing Conditions (2001)

For the existing conditions, multi-lane roadway segments as well as the existing signalized intersections were studied. Table 1 shows the results of the analysis.

Highway Segment	Peak Hour
US 23-441 Between US 23-441-74 Intersection and US 23 Business	A
US 23-74 East of Interchange with US 23 Business	C

[†]Based on 2001 existing traffic volumes.

The operations of two signalized intersections within the study area were also analyzed. The first signalized intersection is located at US 23-441 and US 23 Business. The second is located at US 23 Business and NC 107. Table 2 shows the existing Level of Service (LOS) for the signalized intersections.

Table 2. Signalized Intersection Peak-Hour Level-of-Service – 2001 [†]		
Intersection	AM Peak Hour	PM Peak Hour
US 23 Business at NC 107	E (58.6)	D (51.9)
US 23-441 at US 23 Business	C (24.8)	C (21.3)

[†]Delay in seconds per vehicle (sec/veh).

2025 “No-Build” Scenario

For the 2025 “No-Build” scenario, existing multi-lane roadway segments were analyzed. Table 3 shows the results of this analysis.

Table 3 Existing Multilane Highway Peak-Hour Level-of-Service – 2025 [†]		
Highway Segment	No-Build	Build
US 23-441 Between US 23-441-74 Intersection and US 23 Business	C	C
US 23-74 East of US 23 Business	F	D

[†]Based on 2025 traffic volume projections.

The capacities of existing intersections were analyzed for the 2025 “No Build” scenario. Table 4 shows the results of analysis.

Table 4. Signalized Intersection Peak-Hour Level-of-Service – 2025 ¹				
Intersection	No-Build		Build	
	AM	PM	AM	PM
US 23-441 at US 23 Business	E (60.0)	F (112.0)	D (48.4)	D (37.0)
US 23 Business at NC 107	F (457.8)	F (411.3)	F (95.3)	F (107.6)

¹Delay in sec/veh.

2025 “Build” Scenario

Table 5 shows the projected 2025 LOS for the Southern Loop. In 2025, the west segment of the Southern Loop from US 23-441 to NC 107 would operate at LOS B for the Northern Alternate and LOS C for the Southern Alternate. For both alternates, the east segment of the Southern Loop from NC 107 to US 23-74 would operate at LOS C.

Table 5 Projected Operation of Multilane Freeway Segments – 2025		
Proposed Southern Loop Segment ¹		Peak-Hour LOS (Density) ²
West Segment	Northern Alternate	B (15.3)
	Southern Alternate	C (21.5)
East Segment (Northern and Southern Alternates)		C (20.3)

¹The west segment of the Southern Loop is from US 23-441 to NC 107. The east segment of the Southern Loop is from NC 107 to US 23-74.

²Density is pc/mi/ln.

As shown in Table 4 above, the signalized intersection of US 23-441 and US 23 Business would operate at LOS D in the AM and PM peak hours for the 2025 Build scenario (as compared to LOS E for the AM peak hour and LOS F in the PM peak hour for the 2025 No-Build scenario). For the 2025 Build scenario, the intersection of US 23 Business and NC 107 would operate at LOS F for both the AM and PM peak hours. While the LOS for the intersection would not improve with the 2025 Build scenario, the delay would be reduced from 457.8 seconds per vehicle to 95.3 seconds per vehicle for the AM peak hour and from 411.3 seconds per vehicle to 107.6 seconds per vehicle for the PM peak hour.

NC 107 Interchange

Two ramp configurations for the interchange of the Southern Loop and NC 107 were analyzed for the 2025 Build scenario. Option 1 would be a simple diamond interchange. Option 2 would be a simple diamond with a loop in the northeast quadrant. Table 6 shows the results of this analysis.

Table 6. Signalized Intersection Peak-Hour Level-of-Service: Sylva-Dillsboro Southern Loop and NC 107 – 2025 [†]								
Option	Northern Alternate				Southern Alternate			
	Eastbound Ramps		Westbound Ramps		Eastbound Ramps		Westbound Ramps	
	AM	PM	AM	PM	AM	PM	AM	PM
1	D (47.6)	D (51.1)	E (60.1)	D (50.1)	C (34.4)	C (21.1)	D (49.4)	D (41.3)
2	C (28.9)	B (16.0)	D (42.4)	B (19.5)	C (24.2)	B (14.5)	D (35.4)	B (19.2)

[†]Delay is in sec/veh.

As shown above, Option 2 would provide the best LOS for both the Northern and Southern Alternates.

III. Environmental Screening

The following is a preliminary review of environmental issues that have a potential impact to the project. The information obtained for the environmental screening is from readily available database information only. No survey work

other than a field inspection was prepared for this study. The environmental screening is not a substitute for the project planning/environmental documentation process. The purpose of environmental screening is to identify potential environmental issues early in the process. For the purpose of this study, potential environmental issues were identified within the proposed corridors for the Sylva-Dillsboro Southern Loop. Figures 4a, 4b, and 4c, the Environmental Screening Maps, show the location of potential environmental issues.

Historic Properties

As part of the environmental screening process, the North Carolina State Historic Preservation Office (SHPO) was contacted to determine if any historic resources on the National Register of Historic Places (NRHP) or state lists exist within the proposed corridor. For the Northern Alternate, no historic properties on either the NRHP or state lists exist within the study corridor. For the Southern Alternate, no historic sites exist within the study corridor. However, six sites on the NRHP are close to the Southern Alternate and are located in Webster. These sites are (1) the Lucious Coleman Hall House (296 feet north of the Southern Alternate); (2) Webster Baptist Church (237 feet south of the Southern Alternate); (3) Webster Rock School (109 feet north of the Southern Alternate); (4) Webster Methodist Church (275 feet north of the Southern Alternate); (5) the Walter E. Moore House (905 feet north of the Southern Alternate); and (6) the Elisha Calor Hedden House (1,285 feet north of the Southern Alternate).

For the purpose of this screening, a cursory field inspection was conducted to identify properties within the study corridors that had the potential to be older than 50 years. Based on the field review of the Northern and Southern Alternates, no structures were identified as being 50 years or older. Should this project be programmed into the TIP, it is recommended that a survey of the corridors be conducted by an architectural historian to identify potentially eligible properties.

Floodplains

Jackson County, the Town of Sylva, the Town of Dillsboro, and the Town of Webster are regular participants in the national Flood Insurance Program. Federal Emergency Management Agency (FEMA) floodplain map Panels 370282 0042 C, Jackson County, North Carolina; 370282 0043 C, Jackson County, North Carolina; 370282 0050 C, Jackson County, North Carolina; 370282 0085 C, Jackson County, North Carolina, and 370282 0100 C, Jackson County, North Carolina, and the Flood Hazard Boundary Map for the Town of Webster from the Department of Housing and Urban Development Federal Insurance Administration were reviewed to determine whether the proposed project corridors would cross the 100-year floodplain.

The Northern Alternate would cross the 100-year floodplain at the Tuckaseegee River and Blanton Branch. A crossing is considered to be the width of the 100-year floodplain where it crosses the study corridors. One crossing of the Tuckaseegee River would occur, and one crossing may occur depending upon placement of the actual corridor. The crossings would be 300 feet wide and possibly 1,200 feet wide, respectively. The crossing at Blanton Branch may occur depending upon placement of the roadway and would be 200 feet wide at its greatest point. No base flood elevations were provided.

The Southern Alternate would cross the Tuckaseegee River in two places and the Savannah Creek in one place. These crossings would be approximately 400 feet, 500 feet, and 200 feet, respectively. The only known base flood elevation is for the 200-foot crossing and is 2,024 feet. When implementing the project, local and state regulations regarding the 100-year floodplain should be followed.

Stream Classification

The proposed project is located in the Little Tennessee River Basin. The Northern Alternate would cross three streams: the Tuckaseegee River, Cope Creek, and Blanton Branch. The Tuckaseegee River is classified as a freshwater stream (C) and Trout Waters (Tr). Blanton Branch is classified as a freshwater (C) stream, which is the minimum classification for all freshwater streams. Cope Creek is also classified as (C) as well as Trout Waters (Tr). The Southern Alternate would cross the Savannah Creek as well as the Tuckaseegee River and Blanton Branch. Savannah Creek is classified as a freshwater (C) stream as well as Trout Waters (Tr). The streams with a (Tr) classification are waters with conditions that must sustain and allow for trout propagation and survival of stocked trout on a year-round basis. During any environmental documentation study, the appropriate coordination with the North Carolina Department of Environment and Natural Resources (NCDENR) and the U.S. Army Corps of Engineers (USACE) should occur.

Wetlands

National Wetland Inventory (NWI) maps for the Sylva North, Sylva South, and Greens Creek quads (USGS) were reviewed to determine whether the proposed corridors would impact any potential wetlands. Three pockets of potential wetlands are located within the Northern Alternate. Two of these pockets are located along the northern edge of the corridor approximately 2,500 feet north of SR 1710. The other pocket of potential wetlands is located at the terminus of the corridor with US 23-74. The Southern Alternate has only one pocket of potential wetlands located in the terminus of the corridor with US 23-74. For both alternates, potential wetlands are located along the Tuckaseegee River. During the preparation of any environmental assessment, it is recommended that these wetlands be surveyed and delineated. Coordination with the U.S. Army

Corps of Engineers should be conducted before construction of the project, and appropriate permitting and mitigation measures taken if impacts are unavoidable.

Threatened and Endangered Species

The North Carolina Natural Heritage Program and the United States Fish and Wildlife Service were contacted to determine the presence of any threatened and endangered species within the proposed project corridors. Table 7 shows the threatened and endangered species that are found to be present within the Sylva North, Sylva South, and Greens Creek quads (USGS). USGS quads were utilized to provide a more precise analysis of threatened and endangered species that are present in the vicinity of the study corridors.

A survey for these species should be completed during preparation of an environmental assessment, and if these species are found to be present, additional investigations should be undertaken.

Name (<i>Scientific Name</i>)	Federal Status ¹	State Status ²	USGS Quad (Habitat)
Carolina Northern Flying Squirrel (<i>Glaucomys sabrinus</i>)	LE	E	Sylva North (High elevation forests, mainly spruce and fir)
Indiana Bat (<i>Myotis sodalis</i>)	LE	E	Sylva North (Hollow trees and loose bark in the summer, caves in the winter)
Southern Appalachian yellow-bellied sapsucker (<i>Sphyrapicus varius appalachiensis</i>)	FSC	--	Sylva North (Mature, open hardwoods with scattered dead trees)
Appalachian Bewick's wren (<i>Thryomanes bewickii altus</i>)	FSC	E	Sylva North (Woodland borders or openings, farmlands or brushy fields, at high elevations)
Bog turtle (<i>Clemmys muhlenbergii</i>)	LT (S/A)	T	Greens Creek (Bogs, wet pastures, wet thickets)
Engraved covert (<i>Fumonelix orestes</i>)	--	T	Sylva North (Plott Balsam mountains)
Smokey Mountain covert (<i>Inflectarius ferrissi</i>)	--	T	Sylva North (Great Smokey Mountains and Plott Balsams)
Appalachian elktoe (<i>Alasmodonta raveneliana</i>)	LE	E	Sylva South, Greens Creek, (Tennessee drainages, only in Little Tennessee and Nolichucky drainages at present)
Rock gnome lichen (<i>Gymnoderma lineare</i>)	LE	T	Sylva North (High elevation rock outcrops, outcrops in humid gorges)
Liverwort	FSC	PE	Sylva North (on bark of Fraser Firs)

Table 7. Threatened and Endangered Species Found within Topographic Quadrangles Encompassing Sylva-Dillsboro Southern Loop Study Corridors			
Name (Scientific Name)	Federal Status ¹	State Status ²	USGS Quad (Habitat)
(<i>Sphenolobopsis pearsonii</i>)			in spruce-fir forests)
Goldenseal (<i>Hydrastis canadensis</i>)	--	E-SC	Sylva North, Sylva South (cove forests, other rich deciduous forests)
Fraser's loosestrife (<i>Lysimachia fraseri</i>)	FSC	E	Sylva South (forests, roadsides)
Prairie dropseed (<i>Sporobolus heterolepis</i>)	--	E	Sylva South (olivine barrens)
¹ Definitions of Federal Status: LT=Listed Threatened, LE=Listed Endangered, FSC=Species of Concern, S/A=Similarity of Appearance			
² Definitions of State Status: T=Threatened, E=Endangered, P=Proposed, SC=Special Concern			

Source: North Carolina Natural Heritage Program, 2002
US Fish and Wildlife Service, 2001.

Environmental Justice

Executive Order 12898 requires that Federal agencies identify and address disproportionately high and adverse effects of federally funded projects on minority and low-income populations. The Census 2000 demographic data were reviewed at the block level for high levels of minority and Hispanic populations. For the Northern Alternate, potential minority EJ concerns are located along NC 107 and just northeast of NC 107 along Cope Creek Road. Potential Hispanic EJ concerns are located along Cope Creek Road and SR 1710. The Southern Alternate has potential minority EJ concerns located just south of the Tuckaseegee River and along Blanton Branch Road at the northern terminus. No potential Hispanic EJ concerns were noted within the Southern Alternate. Since 1999 median household income is not yet available from the US Census Bureau, 1989 median household income data were used at the block group level to determine lower than normal median household income.

Hazardous Materials

Because the Southern Loop will be on new location, a hazardous materials database review was not completed.

IV. Description of Alternates

Two alternate corridors were identified for study. The proposed cross-section for each alternate was determined based on 2025 traffic projections. The Northern Alternate is in general conformity with the Sylva-Dillsboro Southern Loop as described in the thoroughfare plan for Sylva and Dillsboro. The

Southern Alternate was developed to provide better access to southern Jackson County from US 23-441 and US 23-74. The cross-section for both alternates consists of a 4-lane divided facility with a 22-foot median. The "basic" right-of-way would be 300 feet with extensive permanent easements due to the mountainous terrain. Therefore, the right-of-way would range from 300 feet to 1,400 feet. Because this study is for a roadway on new location, a 1,200-foot corridor was utilized for the environmental screening process. Each alternate is divided into two segments. The west segment runs from US 23-441 to NC 107, and the east segment runs from NC 107 to US 23-74.

Northern Alternate

The Northern Alternate is a multi-lane roadway on new location from US 23-441 south of Dillsboro to US 23-74 east of Sylva. The roadway would be a four-lane, divided freeway with limited access along a length 6.3 miles. An interchange would be located at the intersection of the Northern Alternate with NC 107 just south of Cope Creek Road. The interchange would be a standard diamond interchange with a width of 1,000 feet to allow for the possible addition of loops.

Southern Alternate

The Southern Alternate is a multi-lane roadway on new location from US 23-441 south of Dillsboro to US 23-74 east of Sylva. The roadway would be a four-lane, divided freeway with limited access along a length of 8.7 miles. An interchange would be located at the intersection of the Southern Alternate with NC 107 just north of SR 1340. The interchange would be a standard diamond interchange with a width of 1,000 feet to allow for the possible addition of loops. The selection of the Southern Alternate alignment for the Southern Loop will require amending the current thoroughfare plan to insure compliance with the transportation planning process.

Additional Design Considerations

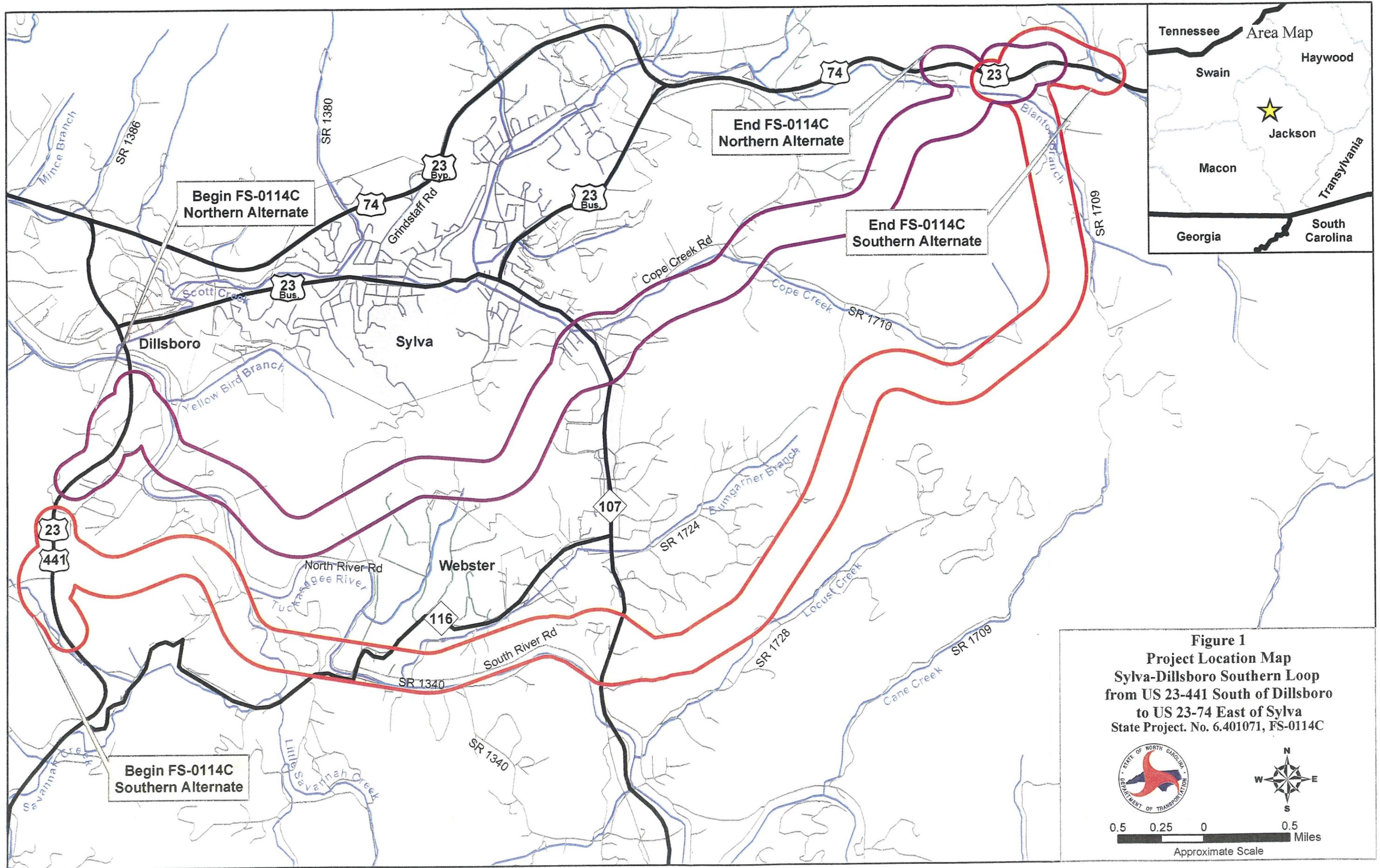
Due to the steep grades associated with portions of the project, both slow-truck lanes and runaway truck ramps may be required in the detailed design of the roadway.

Table 9 provides a breakdown of the cost estimates for the Northern and Southern Alternates by west and east segment. The cost of the Northern Alternate is \$168,800,000 for construction and \$25,000,000 for right-of-way, for a total cost of \$193,800,000. The cost of the Southern Alternate is \$208,900,000 for construction and \$18,500,000 for right-of-way, for a total cost of \$227,400,000.

Table 9.			
Sylva-Dillsboro Southern Loop			
Cost Estimate			
Segment		Northern Alternate	Southern Alternate
West	Construction	\$99,350,000	\$74,750,000
	ROW	\$16,600,000	\$11,800,000
East	Construction	\$69,450,000	\$134,150,000
	ROW	\$8,400,000	\$6,700,000
Total	Construction	\$168,800,000	\$208,900,000
	ROW	\$25,000,000	\$18,500,000
	Total	\$193,800,000	\$227,400,000

V. Additional Comments

Based on the environmental screening, six historic sites are located adjacent to the Southern Alternate. While not directly impacted by the right-of-way and construction, these sites could be indirectly impacted. See Figure 4a for reference. Additionally, development of the Northern Alternate could impact the commercial development along NC 107. The Wal-Mart Plaza and an auto dealership are located near where the interchange of the Northern Alternate and NC 107 would be located (see Figure 5, Photo 3). Also, Love cemetery is located across NC 107 from Wal-Mart Plaza (see Figure 5, Photo 7).



Begin FS-0114C
Northern Alternate

End FS-0114C
Northern Alternate

End FS-0114C
Southern Alternate

Begin FS-0114C
Southern Alternate



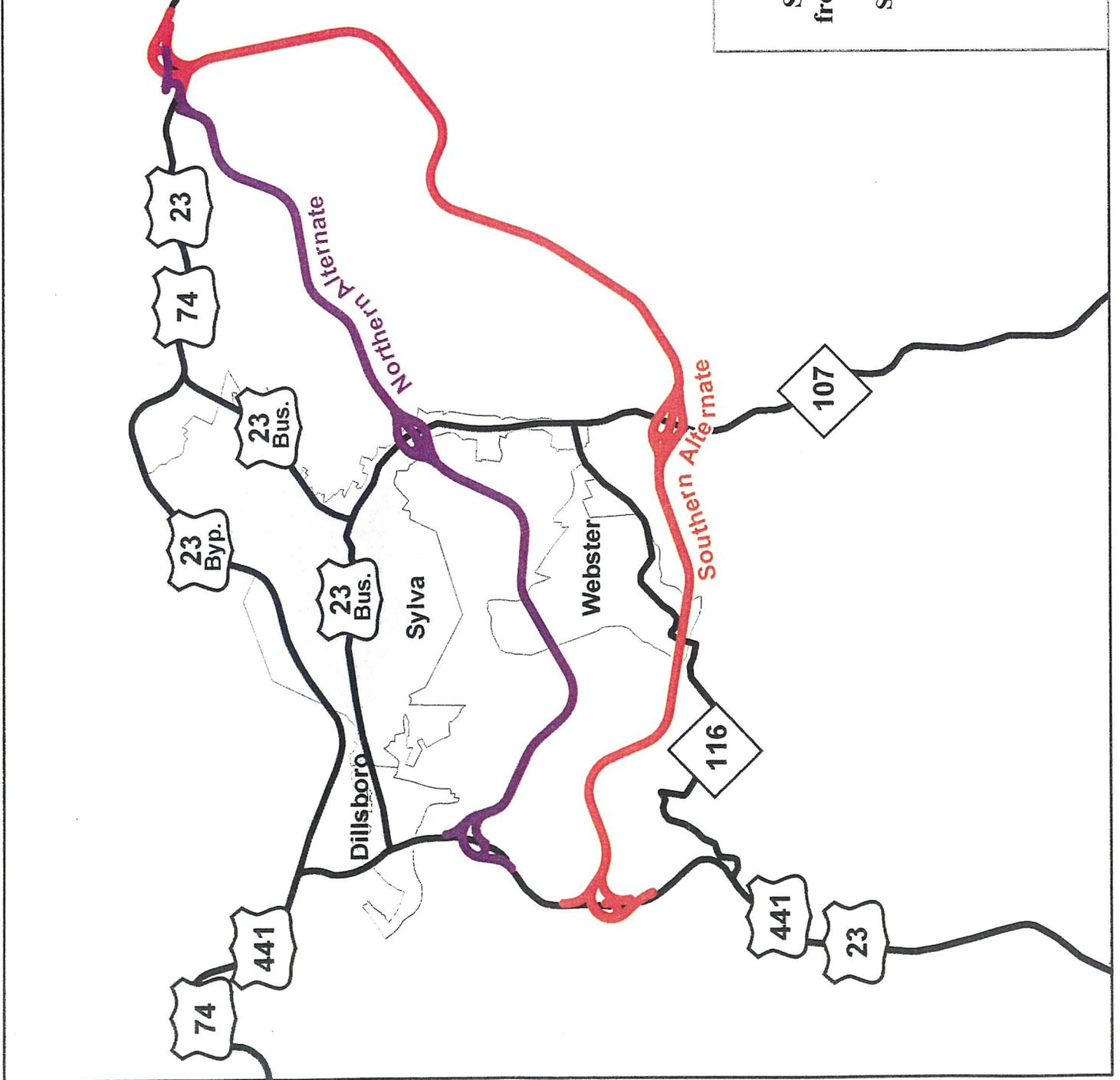
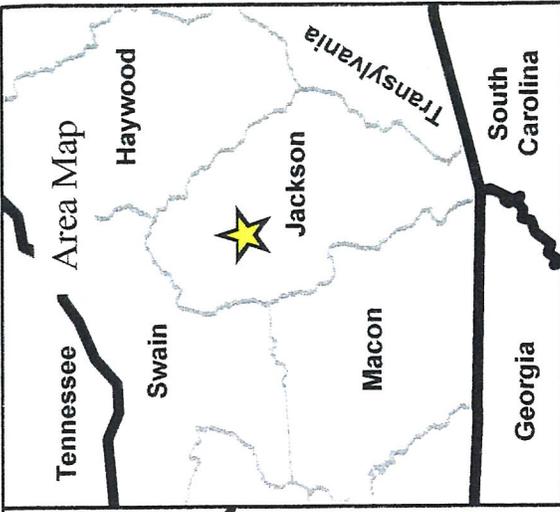
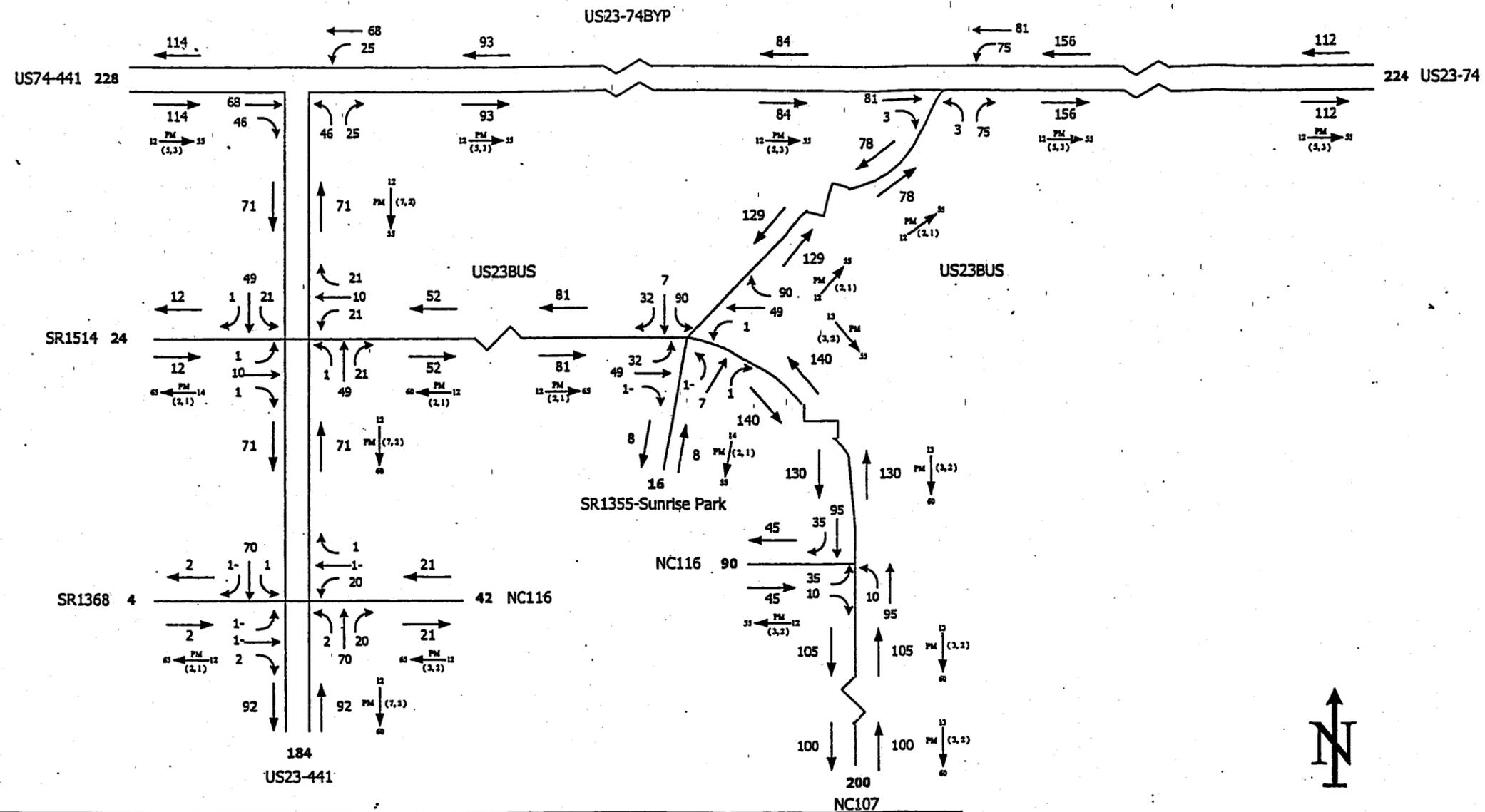


Figure 2

Roadway Network
 Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 State Project. No. 6.401071, FS-0114C



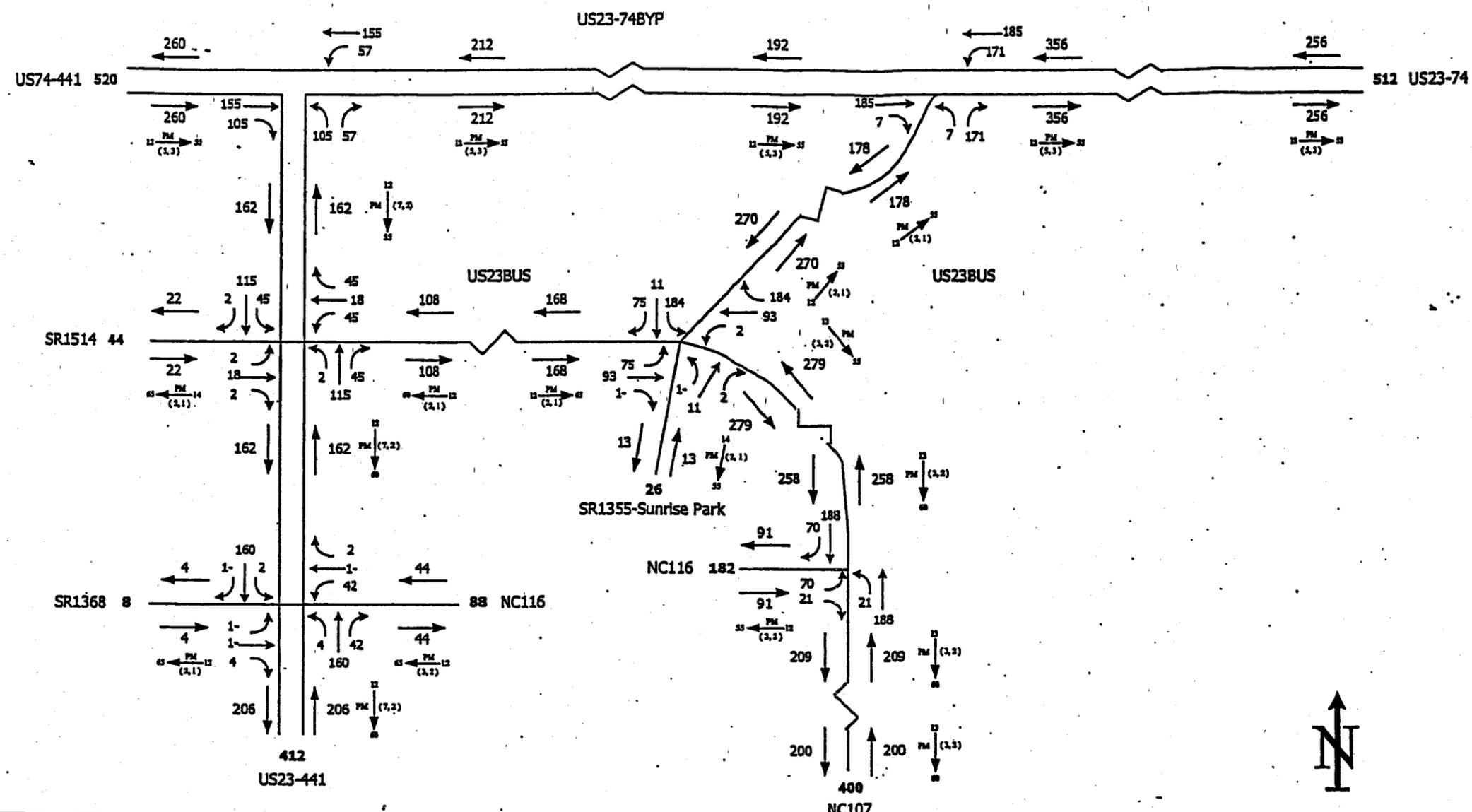


<p>LEGEND</p> <p>### VPD - # OF VEHICLES PER DAY IN 100'S ### - MUCH LESS THAN ### VPD → MOVEMENT PROHIBITED → ONE-WAY MOVEMENT DRV - PM → D (4,0)</p> <p>DHV DESIGN HOURLY VOLUME (%) = K30 K30 = 30TH HIGHEST HOURLY VOLUME PM PM PEAK PERIOD D DIRECTIONAL SPLIT (%) → INDICATES DIRECTION OF D REVERSE FLOW FOR AM PEAK (4,0) DUALS, TT-ST'S (%)</p>			<p>LOCATION: US23BUS and the proposed Sylva-Dillsboro Southern Loop from US23-441 west of Dillsboro to US23-74 east of Sylva in Jackson County</p> <p>PROJECT: Construct Sylva-Dillsboro Southern Loop from US23-441 south of Dillsboro to US23-74 east of Sylva</p> <p>COUNTY: JACKSON</p> <p>DIV.: 14 DATE: Feb., 2002</p> <p>TIP # FS-0114C W. O. # 6.401071</p>
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Figure 3a
2001 Traffic Volumes

Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 Jackson County

State Project No. 6.401071, FS-0114C



LEGEND

MW VPD - # OF VEHICLES PER DAY IN 100'S
 MW - MUCH LESS THAN MW VPD
 → MOVEMENT PROHIBITED
 ← ONE-WAY MOVEMENT
 DRY - PM (4.0) → D
 DRY DESIGN HOURLY VOLUME (%) = K30
 K30 - 30TH HIGHEST HOURLY VOLUME
 PM PM PEAK PERIOD
 D DIRECTIONAL SPLIT (%)
 → INDICATES DIRECTION OF D
 ← REVERSE FLOW FOR AM PEAK
 (4.0) DUALS, TT-ST'S (%)



LOCATION:
 US23BUS and the proposed Sylva-Dillsboro Southern Loop from US23-441 west of Dillsboro to US23-74 east of Sylva in Jackson County

PROJECT:
 Construct Sylva-Dillsboro Southern Loop from US23-441 south of Dillsboro to US23-74 east of Sylva

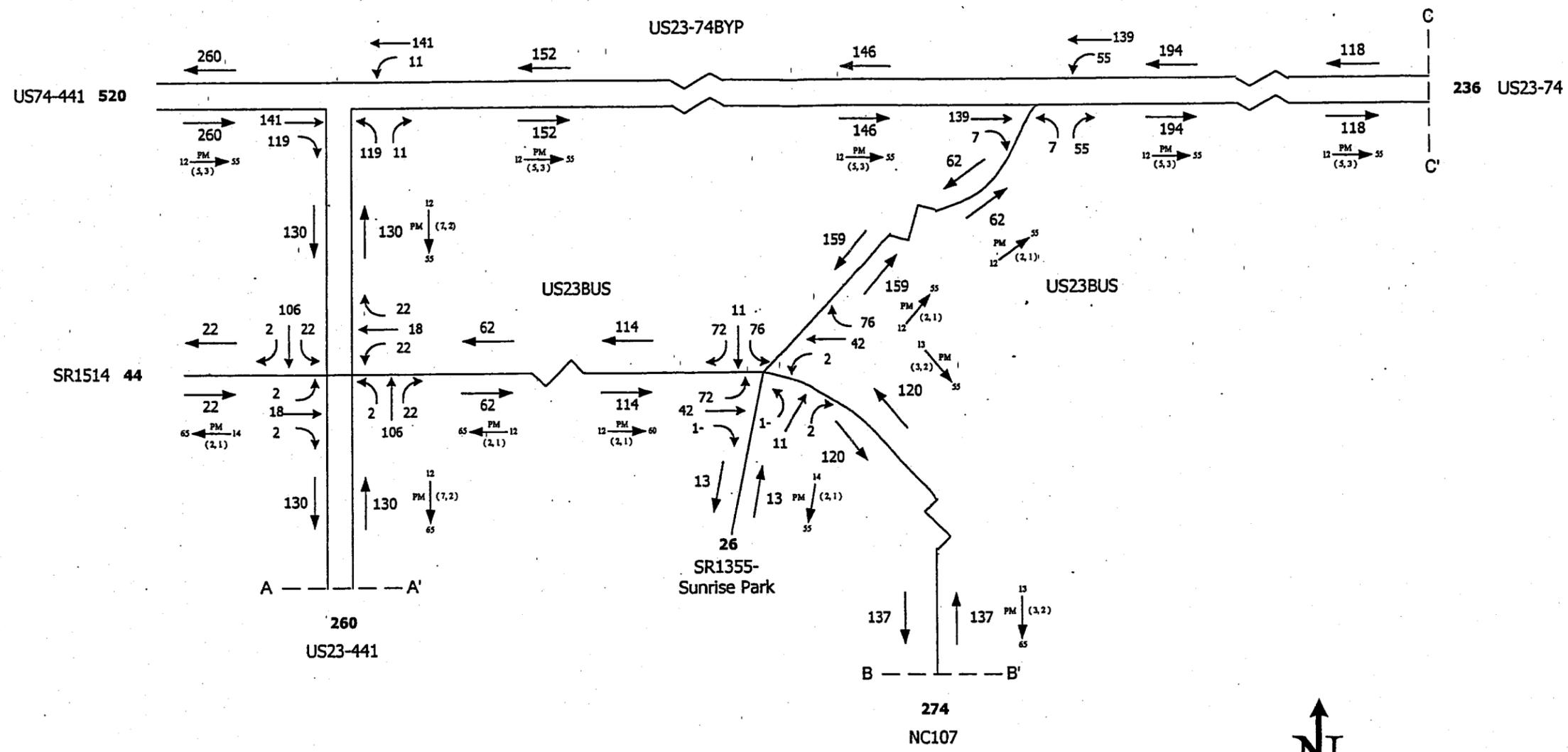
COUNTY: JACKSON

DIV.: 14 **DATE:** Feb., 2002

TIP # FS-0114C **W. O. #** 6.401071

Figure 3b
2025 No-Build Traffic Volumes

 Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 Jackson County



LEGEND

VPD - # OF VEHICLES PER DAY IN 100'S
 ### - MUCH LESS THAN ### VPD
 X MOVEMENT PROHIBITED
 → ONE-WAY MOVEMENT

DEV $\frac{PM}{(4,9)}$ → D
 DHV DESIGN HOURLY VOLUME (%) = K_{30}
 K_{30} = 30TH HIGHEST HOURLY VOLUME
 PM PM PEAK PERIOD
 D DIRECTIONAL SPLIT (%)
 → INDICATES DIRECTION OF D
 REVERSE FLOW FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)



LOCATION:
 US23BUS and the proposed Sylva-Dillsboro Southern Loop from US23-441 west of Dillsboro to US23-74 east of Sylva in Jackson County

PROJECT:
 Construct Sylva-Dillsboro Southern Loop from US23-441 south of Dillsboro to US23-74 east of Sylva

COUNTY: JACKSON

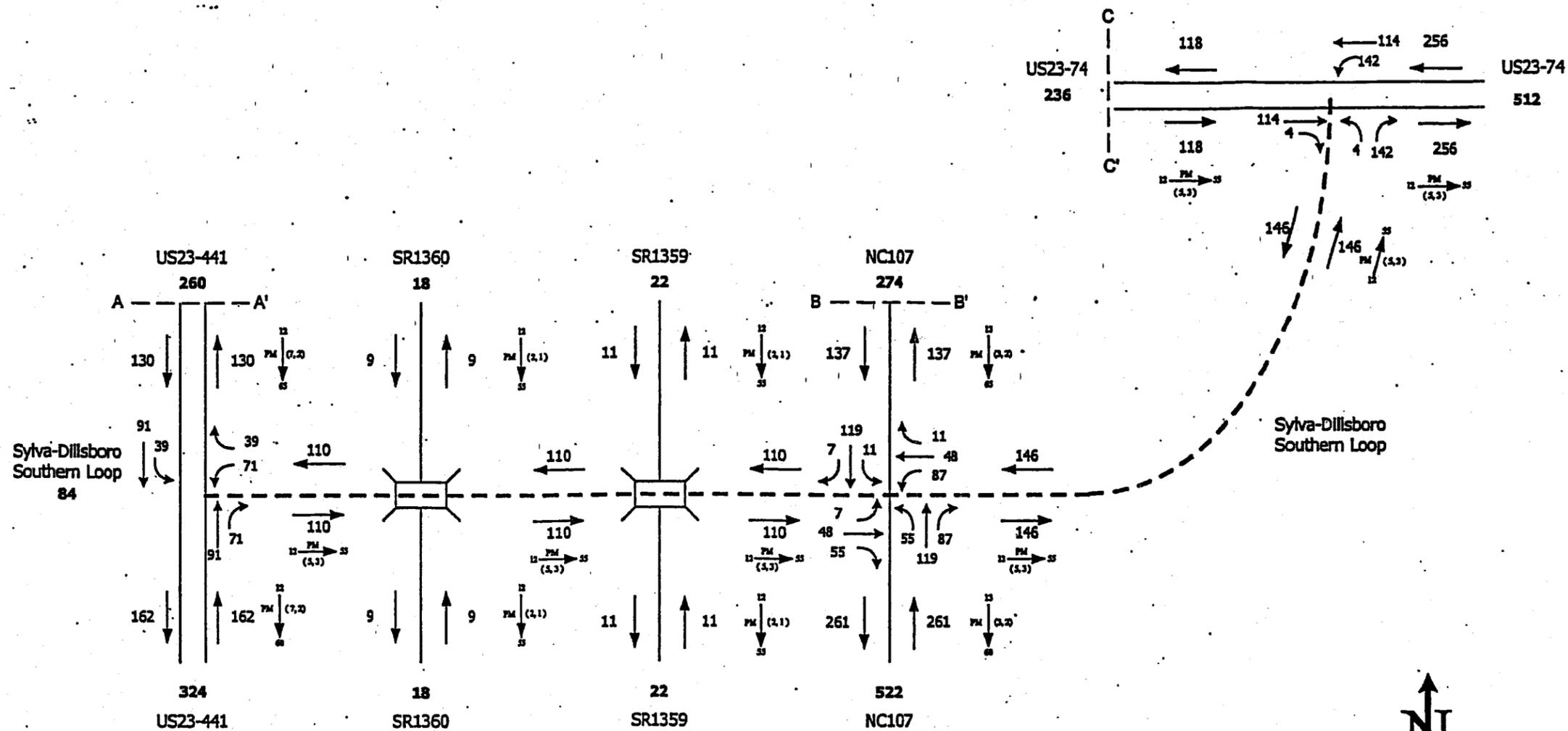
DIV.: 14 **DATE:** Sept., 2001

TIP # FS-0114C **W. O. #** 6.401071

Figure 3c
Northern Alternate
2025 Projected Traffic

Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 Jackson County

State Project No. 6.401071, FS-0114C



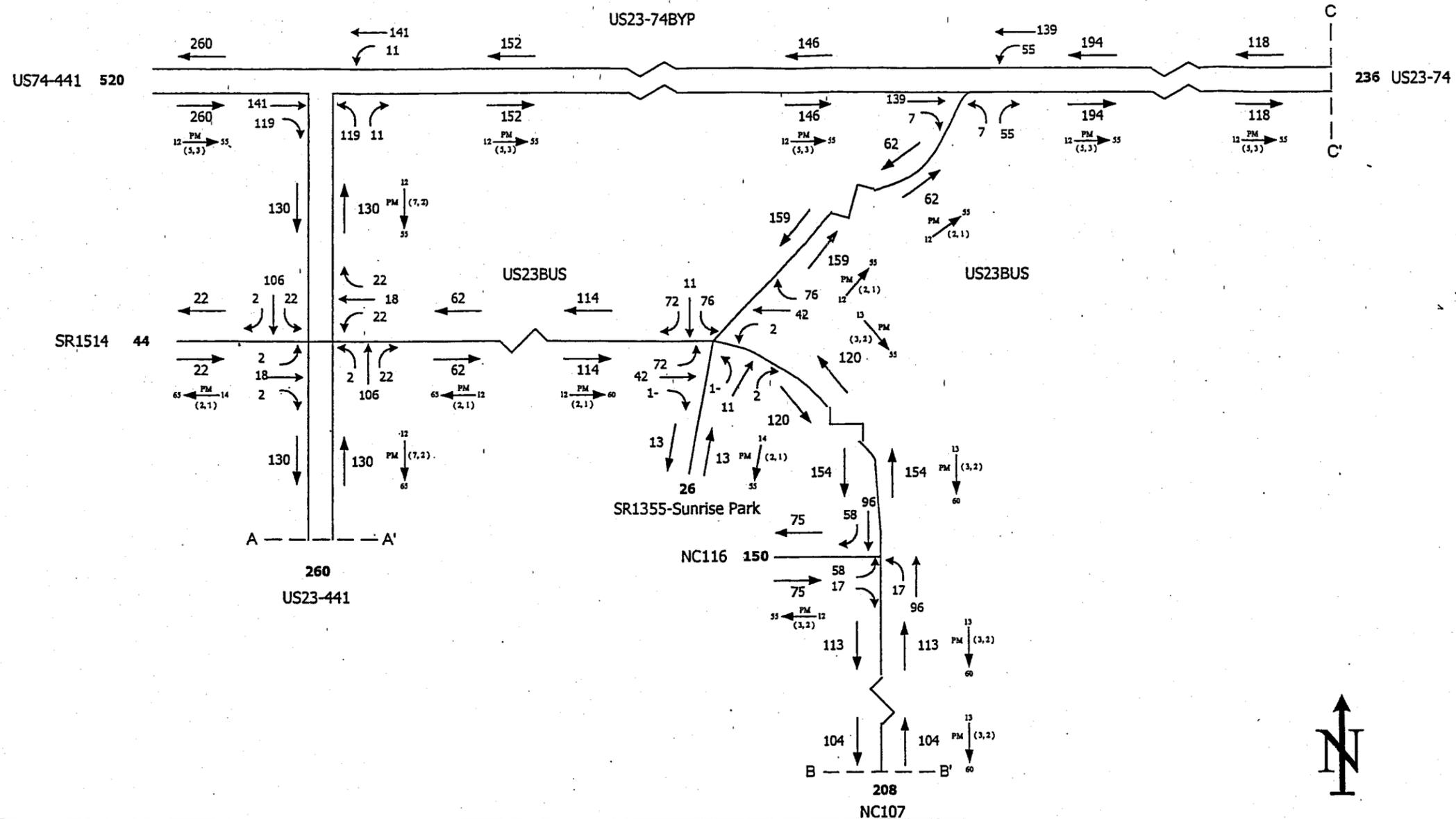
<p>LEGEND</p> <p>### YPD - # OF VEHICLES PER DAY IN 100'S ### - MUCH LESS THAN ### YPD X MOVEMENT PROHIBITED → ONE-WAY MOVEMENT</p> <p>DEV - PM (4.9) → D</p> <p>DHV DESIGN HOURLY VOLUME (%) = K30 K30 = 30TH HIGHEST HOURLY VOLUME PM PM PEAK PERIOD D DIRECTIONAL SPLIT (%) → INDICATES DIRECTION OF D ← REVERSE FLOW FOR AM PEAK (4.9) DUALS, TT-ST'S (%)</p>			<p>LOCATION: US23BUS and the proposed Sylva-Dillsboro Southern Loop from US23-441 west of Dillsboro to US23-74 east of Sylva in Jackson County</p> <p>PROJECT: Construct Sylva-Dillsboro Southern Loop from US23-441 south of Dillsboro to US23-74 east of Sylva</p> <p>COUNTY: JACKSON</p> <p>DIV.: 14 DATE: Sept., 2001</p> <p>TIP # FS-0114C W. O. # 6.401071</p>
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Figure 3d
Northern Alternate
2025 Projected Traffic

Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 Jackson County

State Project No. 6.401071, FS-0114C



<p>LEGEND</p> <p>### VPD - # OF VEHICLES PER DAY IN 100'S ### - MUCH LESS THAN ### VPD X MOVEMENT PROHIBITED — ONE-WAY MOVEMENT DHV — PM — D (4,1) — D DHV DESIGN HOURLY VOLUME (%) = K30 K30 = 30TH HIGHEST HOURLY VOLUME PM PM PEAK PERIOD D DIRECTIONAL SPLIT (%) — INDICATES DIRECTION OF D REVERSE FLOW FOR AM PEAK (d,t) DUALS, TT-ST'S (%)</p>			<p>LOCATION: US23BUS and the proposed Sylva-Dillsboro Southern Loop from US23-441 west of Dillsboro to US23-74 east of Sylva in Jackson County</p> <p>PROJECT: Construct Sylva-Dillsboro Southern Loop from US23-441 south of Dillsboro to US23-74 east of Sylva</p> <p>COUNTY: JACKSON</p> <p>DIV.: 14 DATE: Feb., 2002</p> <p>TIP # FS-0114C W. O. # 6.401071</p>
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Figure 3e
Southern Alternate
2025 Projected Traffic

 Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 Jackson County

 State Project No. 6.401071, FS-0114C

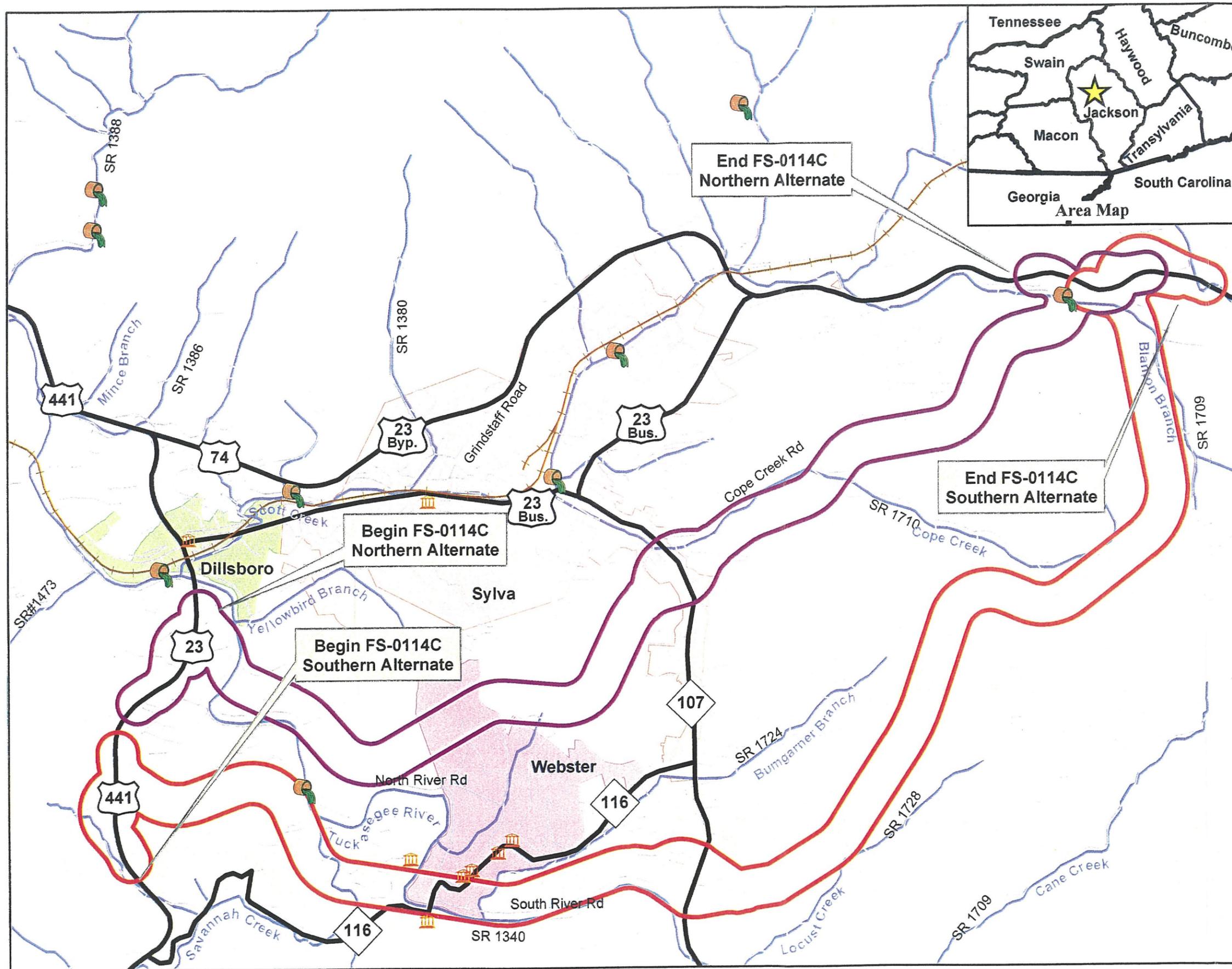
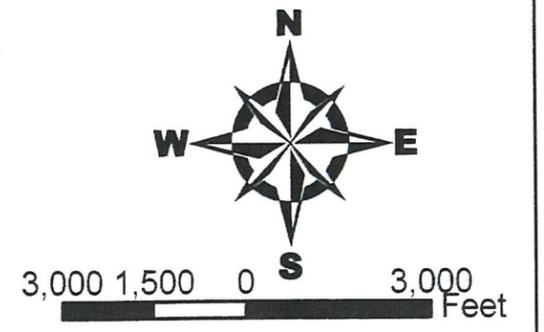


Figure 4a.
 Environmental Screening Map
 Human Environment
 Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 State Project No. 6.401071, FS-0114C

- Legend**
- National Pollutant Discharge Sites
 - Historic Sites
 - Streams
 - Roads
 - Railroads



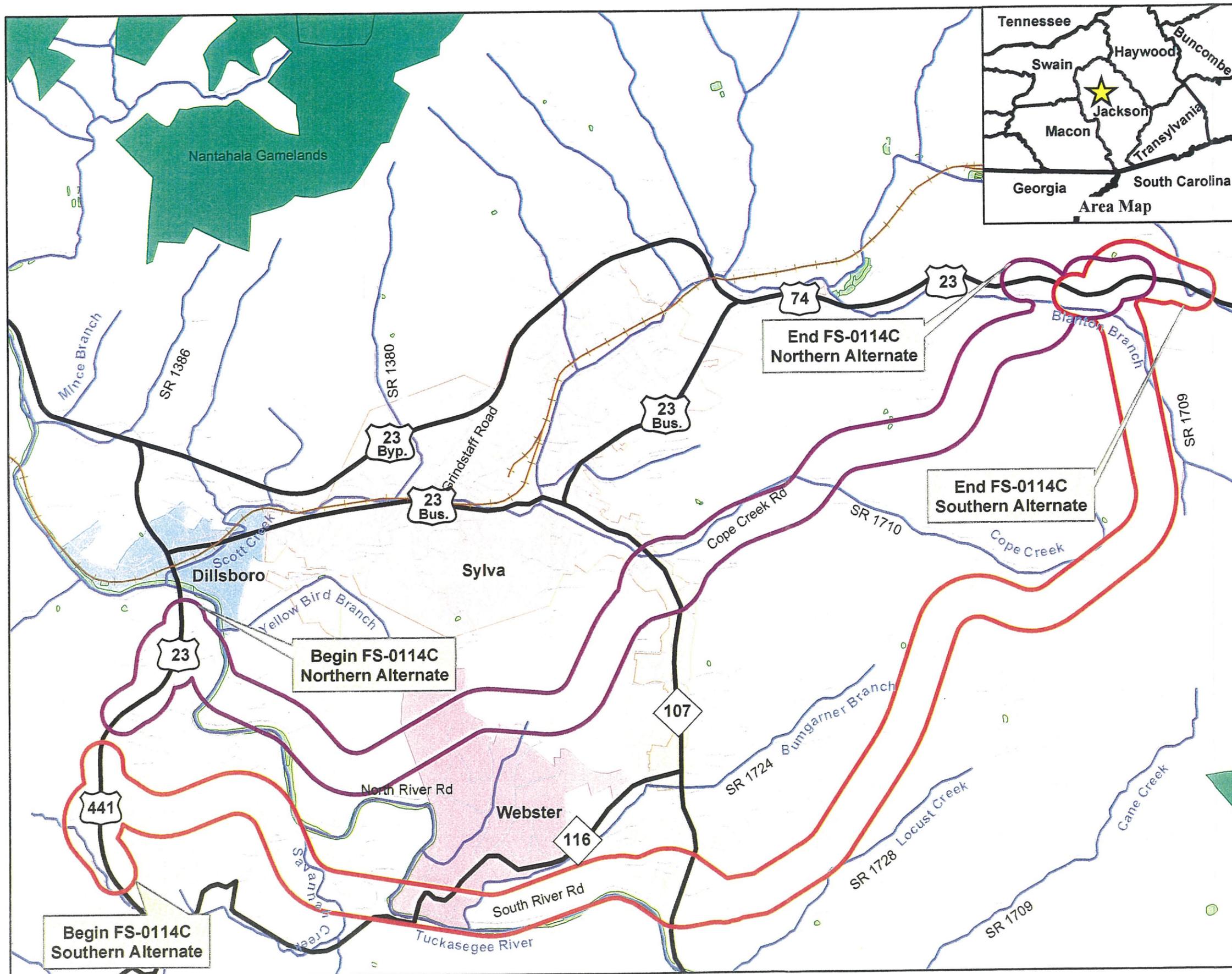
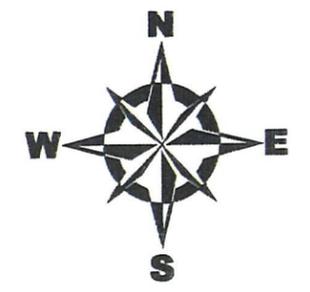


Figure 4b.
 Environmental Screening Map
 Natural Environment
 Sylva-Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 State Project No. 6.401071, FS-0114C

Legend

- Roads
- Railroads
- Streams
- Gamelands
- Potential Wetlands



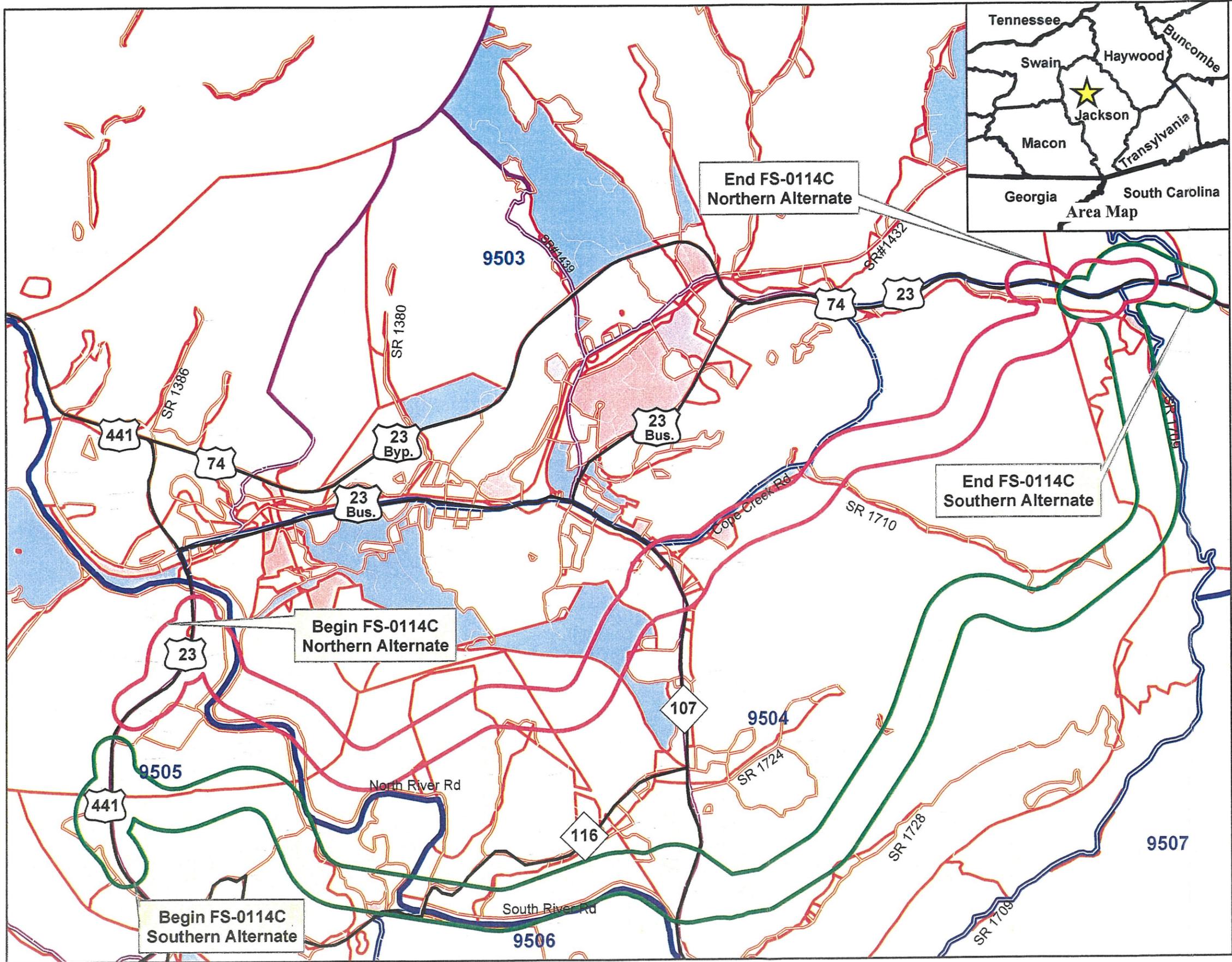


Figure 4c.
Environmental Screening Map
Socioeconomic Environment
 Sylva, Dillsboro Southern Loop
 from US 23-441 South of Dillsboro
 to US 23-74 East of Sylva
 State Project No. 6.401071, FS-0114C

Legend

- Roads
- Census 2000 Tracts
 - Census 2000 Blocks
 - Census 2000 Block Groups
 - Hispanic EJ Concerns
 - Minority EJ Concerns
 - Minority and Hispanic EJ Concerns
- 9502 Census 2000 Tract Number
 1 Census 2000 Block Group Number



Figure 5

Photographs

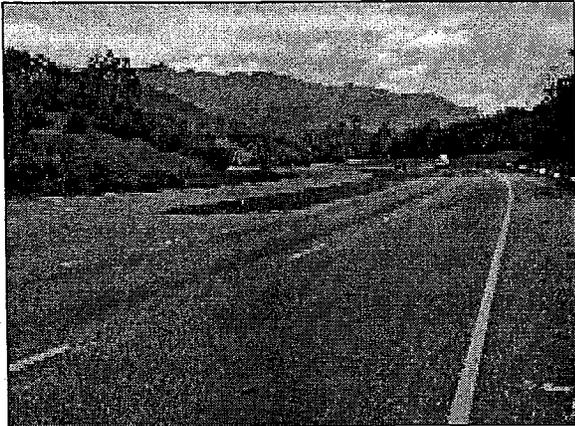


Photo 1 – US 23-441 near Western Termini

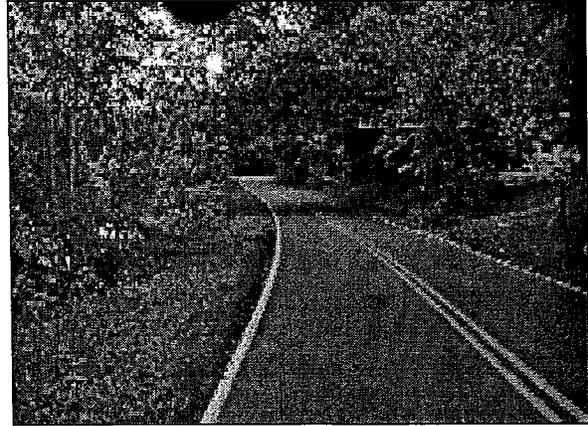


Photo 2 – River Road



Photo 3 – Walmart Plaza, Town of Sylva

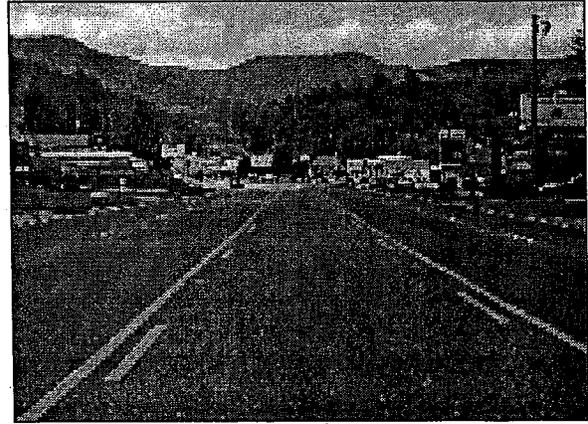


Photo 4 – NC 107 Northbound

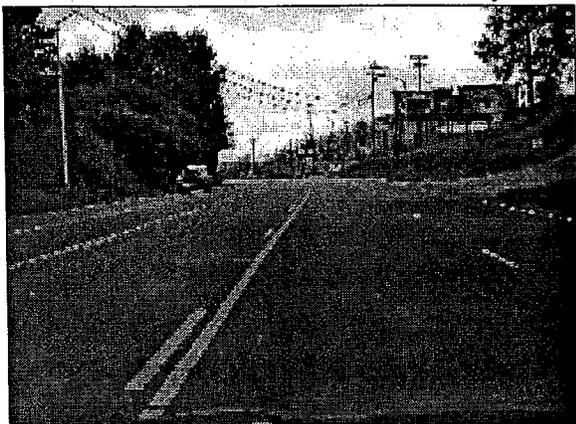


Photo 5 – NC 107 Southbound

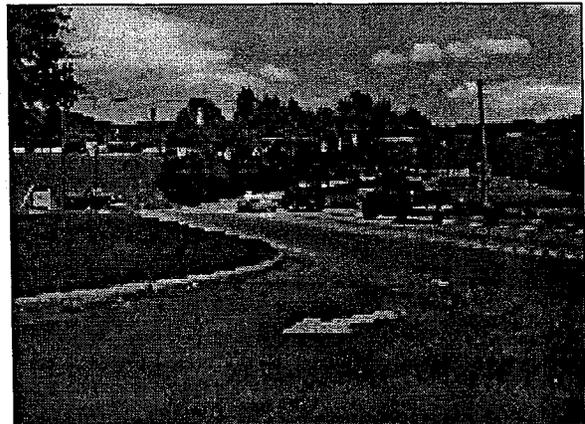


Photo 6 – Intersection of NC 107 and NC 116

Figure 5

Photographs (cont.)



Photo 7 – Love Cemetery near Walmart Plaza

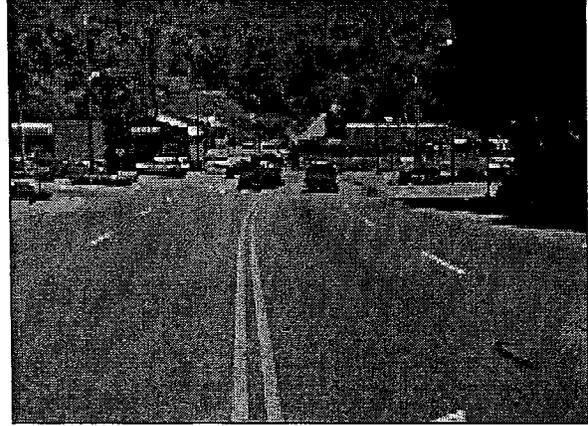


Photo 8 – US 23 Business at NC 107

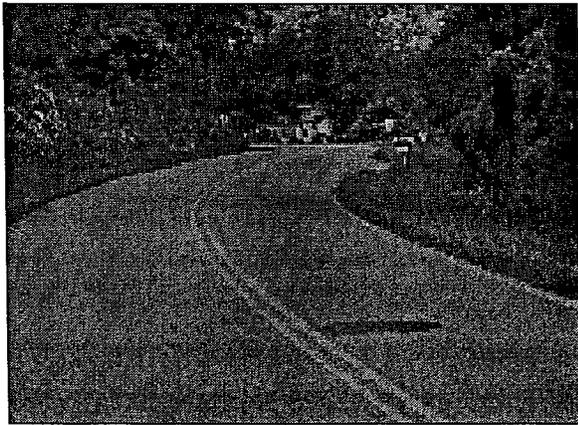


Photo 9 – SR 1775 near Eastern Terminus

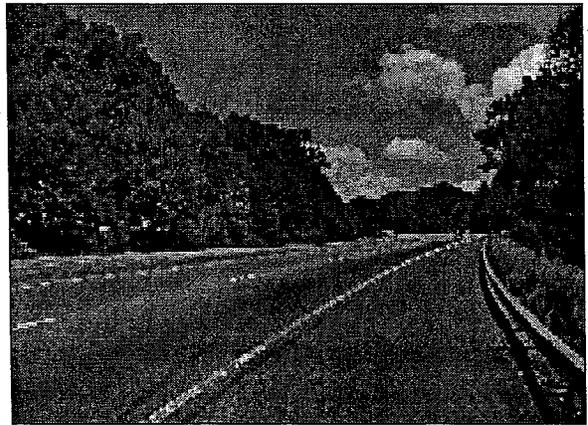


Photo 10 – US 23-74 at Eastern Terminus

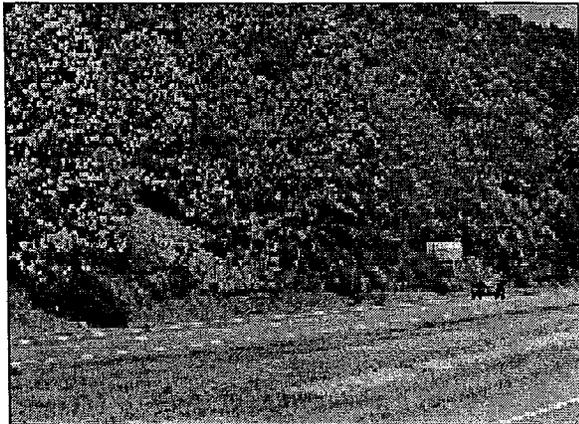


Photo 11 – US 23-74 at Eastern Terminus



Photo 12 – US 23-74 at SR 1775